

The National Association of Corporation Schools

Bulletin

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OUR SECOND ANNUAL CONVENTION

Those who expected much from the convention which was held in Philadelphia, June 9th, 10th, 11th and 12th were not disappointed. The total registration of delegates reached 224. This registration did not include local people, except the members of our organization. As compared with the registration of our first annual convention the attendance was nearly four times as great. Every session was well attended and enthusiasm remained at a high pitch throughout the entire meeting. No extended account of the convention will be given in this issue of the Bulletin as each member of our organization received a complete set of the convention daily published under the title of "Ourselves."

The new administration, in the language of Dr. Steinmetz, our new President, "is going to make a record." We have now proceeded far enough as an organization that it is possible to determine how best to proceed from this point on. Many changes will be made. In all probability our Association will be incorporated. The new Policy and Finance Committee will be composed of men of national reputation. The Executive Committee will hold monthly meetings, and greater research work will be undertaken. A more definite program will be outlined and our members may confidently expect, when they assemble for the third annual convention in Worcester, Mass., next June, to hear reports that will be in keeping with the progress made since the very inception of our organization.

THE PROBLEM OF THE HOUR

One of the most gratifying features of the recent convention was the earnestness manifested by all of the delegates who

attended. There was perfect harmony between the representatives from corporations, public schools, universities and every other branch and form of education.

There is no longer discussion as to the need or value of industrial training. Attention is now centered on how this training can best be accomplished. The figures presented through this issue of the Bulletin by Mayor Mitchel, of New York City, showing that out of a total of 661,000 enrolled scholars in the elementary schools of New York but 4,079 graduate from the high schools, indicate clearly the necessity of new forms of education on behalf of the great majority of children who do not even enter the high schools. The problem is clear and definite—how to solve it is the task which engrossed the attention of the members who attended the convention in Philadelphia last week.

There are 17,000,000 bank depositors in the United States.

Thirty-two million life insurance policies are held by persons living in this country.

About 30,000,000 words a year are transmitted by the cables that link British and American ports.

According to the estimates of bankers, American tourists spend \$300,000,000 a year in Europe.

We don't put up statues of people for doing what was pleasant, but for doing what was hard.—*Edward S. Martin.*

June 28, 1860, was a great day in New York City. On that day the *Great Eastern*, up to that time the "largest vessel ever built," came into port. She would look small beside our great ocean liners of 1914.

On July 1st New York City will have a population of 5,333,537, according to the United States Census Bureau's estimate. This total will be divided about as follows: Manhattan, 2,536,716; Brooklyn, 1,833,696; The Bronx, 529,198; Queens, 339,886; Richmond 94,043.

PRESIDENTIAL ADDRESS *

Dr. Steinmetz upon assuming the Presidency spoke as follows:

Duty first, pleasure afterwards; therefore, I called on the chairmen of the Sections to give us the results of their work during the last year and their experiences before I allow myself the great pleasure of thanking you ladies and gentlemen for the honor you have done to me in selecting me President of this Association; and I wish to assure you that I shall endeavor by all means to further the work of our Association and make it prosper during the coming years, and get farther along on the path which we are treading.

There is an enormous work before us, and I hope when the year shall expire and I shall retire from my work, that I may have the confidence that we have taken a step in advance, however small a step, in the great industrial problem before Modern Civilization.

We cannot hope to solve it completely or greatly advance it; but I hope we will have advanced it a little, and that in addition we may have brought closer to solution some of the details of this problem. So I propose that we deal with and study and begin work on the great industrial problem before us, and solve some of those numerous problems which require immediate solution, and which can be solved within the time and the scope and the means available at the present to us and to our organization.

So the great problem before us is the educational work required by our industrial schools. Education always has consisted of two structural parts: The general education comprising all those features which every member of modern civilization must know before he can safely specialize in vocational training; and, second, the education for his further advanced or future vocations. Now these two divisions have been carried on in the past, one, the general education, by the public school system; and the vocational education by the industries.

In the by-gone days the apprentice classes of the industries took care of that part. Now with the change in industry from the small establishments to the corporations, this latter portion, the apprentice training, has collapsed; and at the same

* Delivered at the second annual convention of the National Association of Corporation Schools, held in Philadelphia, June, 1914.

4 *Bulletin The National Association of Corporation Schools*

time the requirements have been and have become more strict, more general, more variegated. We have not only requirements for the skilled workers in metal, stone and iron, but equally strong is the demand for other work. So now the problem is before us to make provision for accomplishing this part of industrial education. We have always blamed and are still blaming the public schools, that they have not provided industrial training—which is something which never was their business or their duty. We blame them for not doing what it is our duty to do. We might as well blame them for not having built the Panama Canal or for not engaging in the building of battle-ships.

Now, means must be secured, if our civilization is to continue, to provide industrial education. There are two possibilities, one is a reconstruction of the industry or that part of it, to cope with this problem of the corporation schools or the apprentice schools. Another way is, when you are not satisfied with the way things run, to call on the community, the nation and the state to do them. That is, asking the public schools to educate mechanics which you formerly trained, and which modern industry does not take in hand. The proper way is the combination of both methods—the public schools and industrial schools. I do not believe any one of these should be handled exclusively by the industries, that is, the corporation schools. Neither is anybody prepared to state that it is the duty of the State and the Nation to alone give industrial training. Possibly both will have to co-operate in it. That is the great problem which we must investigate, its meaning and its feasibility and its possibility, so as to make a definite and concrete proposition, and so as to provide those 96 per cent of graduates who leave our public schools without industrial training, to provide them with an industrial training which is sufficient to make them earn a proper living.

Within this big problem there are many other problems which require solution. Detail problems are just as essential. Now, since Industry wants this, it should use corporation schools and trade schools and apprentice schools to give industrial training to the graduates of the public schools. But when you come together as an Association, then we must correlate the activities in this direction, tabulate and devise and publish and bring them to the attention of the others. We must keep in mind that a corporation is created for a definite purpose, and that definite purpose is to earn dividends in the coming year, and also in

the next year, and the years following that; that the administrator or chief executive of a corporation has a duty just as we have, and that duty is to see that the corporation gets high dividends next year, and in the years which follow, because it may be that the short-sighted man in an endeavor to earn a single year's dividends, may adopt a course which would destroy them for subsequent years.

But the attitude of the corporation man and executive is a very different thing. We realize here, in our discussion it has been disclosed—that the structural elements of a corporation are human beings, and the efficiency of the corporation depends upon the efficiency of the structural elements; and all we can do to make those elements or units more competent vocationally, physically and mentally is a benefit which justifies the expenditure of the corporation's money in the interest of the stockholders and others. We must now take all we have—all the data of our problems—and turn them into numerical records, so that it can be presented to the stockholders at the annual meeting of the different corporations. That is, we must show, in order to prove that the apprentice schools and the corporation schools are profitable not merely from the viewpoint of general discussion.

I do not believe that anyone is here who does not realize it is a good investment to go into and develop that activity; but we must be able to record and show this numerically and mathematically in our Annual Report; and I believe that is the solution which we must get in the limited time before us. It may be said it is to the advancement of the human race. That is all right, but the advancement of the corporation is the advancement of the human race, too. We must take this work and translate it so that every stockholder and director of the corporation can understand it. We must not forget that we are representing industrial corporations, the administrators of which are men like ourselves, who desire to do the best they can for everybody; who would be willing to spend their own money for such education in many instances. But who are not, as officials, anxious to deflect the moneys of their corporations to purposes which cannot be shown to be definitely to the advantage of the corporation.

Then there is another thing: We are here to do constructive work in educational lines, and to do it as efficiently and economically as possible. And that precludes doing destructive work. And as some speakers have pointed out, there is an organization

in our public school system which we should not overlook. We should not, on the other hand, put all the blame on them. That agency has the confidence of the citizens at large, so that they are willing to devote to the maintenance of the public school educational system the largest amounts in public appropriations. Now because this educational system does not give industrial training to-day, and does not do what it has not done heretofore, that is no reason for claiming that the public schools should be shut down. There is a public organization: It is up to us to make use of it, as it is powerful and has the confidence of the public. We should use it as completely as we can. To go outside of the public school system is permissible; but justified only when it is proved beyond a doubt that the public school system cannot do it, and cannot be made to do it. That has not been proven: and it will not be proven.

Now it is all right for the Boards of Trade to try to prove it. That is the case in some communities: but I also recollect communities where educational schools have been advanced beyond others. But were that work of education ever given into the control of the Boards of Trade, there would be no progress in the future. There are progressive Boards of Trade in the western parts of our country; but all of them are not progressive. On the other hand, there are progressive trade-schools; and we must co-operate with them. But by all means, use the agencies which exist and before we attempt to do something new, we must see to it that we fail to get economy from utilization of what we have here. That can be attained as we have seen in educational institutes. We have seen the same thing in our colleges. The Industries should take an interest in the educational system of the college and add their influence, which is all powerful; and the colleges, wakening up and doing their work by taking men from the industries.

I also may say that the teaching staff in the night schools is taken largely from the industries, especially a large part of those who teach the English language in the night schools for foreigners who do not speak English.

But the plea I want to make to you in regard to our activity is to consider the big problem before us and work on it. But do not work only on the broad problem, which will not be solved this year or next year; keep to the ones which we can solve within a reasonable time.

We must realize that we must keep our enthusiasm—but let

it stay on earth; and realize that the corporation is an organization, a definite business organization which we must use. Do not throw away something which may be made useful; because only thereby can you get efficiency and economy in our work. (Prolonged Applause.)

INDUSTRIAL SCHOOLS THRIVE

"Many of the industrial leaders in this city are realizing the necessity of establishing industrial schools for boys and girls. A large number of these have included vocational training in their shops and factories during working hours and are deriving a considerable amount of benefit.

"The transition from school to the shop or factory should be gradual. The men and boys who are employed in the industrial world should spend part of their time during the day in school and part at work. It is one of the greatest blunders to have children enter any field without at least a slight knowledge of their surroundings. There should be established typical industrial trade centers and trained teachers who would teach the boy or girl to use his or her hands in a scientific manner. In this way they are better fitted to become efficient and are a more valuable asset to their employer."

He praised the Philadelphia trade schools and told of a large number of boys who are attending the school during certain hours of the day and are employed in a nearby shop the balance of the day. He urged all parents to co-operate with the school authorities and have this practice enlarged.

Dr. Brumbaugh also asserted that the physical examination should be required of all boys and girls who are applicants for a working certificate. Many of the children who are employed to-day are not physically fit to be occupied with any manual labor tasks, he said.

John C. Frazee, director of the vocational educational interests, said that there were two great things to be considered in regard to continuation of education.

"First," he stated, "the terrible complexity of the matter, and second, that there should be a specific application of certain agencies to obtain certain ends. In other words, it should not be necessary to take specific steps to secure industrial education for our boys and girls."

EDUCATE THOSE WHO WORK

From the Philadelphia Enquirer.

Not one penny is being used for the purpose of educating thousands of boys and girls who leave school at the age of fourteen to enter the industrial fields of this city, while more than \$1,500,000 is being spent annually for the purpose of educating children who graduate from the grammar grades into the high schools. This statement was made by Dr. Martin G. Brumbaugh, Superintendent of the Philadelphia public schools, who spoke before the members of the Industrial and Technical Conference of the Public Education Association of Philadelphia.

"The night schools of this city," said Dr. Brumbaugh "should only be used for the purpose of educating, Americanizing and teaching citizenship to foreigners. The knowledge gained by the average boy and girl who work in shops and factories a number of hours each day and attend school at night is secured at too dear a price. Something more definite should be done to remedy or eliminate the necessity of any young man or woman, except foreigners, attending school at night.

It is a well-known fact that thousands of our boys and girls after leaving school and securing a position in one of the many industrial establishments in this city, with the aid of a working certificate have left those positions within a month's time and did nothing but loaf on the streets. Stringent methods should be invoked to prohibit such a disastrous practice. Enough legislation should be enacted which would compel all boys and girls under the age of sixteen to return to their class room, providing they lose their position a short time after leaving school.

NONE OF 410,000,000 KILLED

Two hundred and ninety-nine railways of the United States, operating a mileage equal to the combined railways of the United Kingdom, Germany, France, Austria, and Italy, went through the fiscal year ended June 30, 1913, without a single fatality to a passenger in a train accident.

The railways, which operate together 120,901 miles of line, constitute more than two-thirds of the operating companies making their annual reports to the Bureau of Railway News and Statistics.

During the year the railways thus reporting complete immunity carried a total of 409,808,488 passengers.

MAYOR MITCHEL TO END SCHOOL "MORTALITY"

Only 4,079 Out of 661,000 Students Graduate—Plans to Revolutionize System

Dr. John Purroy Mitchel signalized his receipt of the honorary degree of LL.D. at the New York University commencement exercises by delivering a remarkable address on the educational needs of the city of which he is Mayor.

"There is a mortality in the public school system of New York City," said the newly entitled executive, and then having sounded this note of alarm, he proceeded to enlarge on his theme and, better still—suggest a remedy.

Explaining the enormity of New York's educational programme, the Mayor stated that in the colleges and technical schools of the city there are about 10,000 students. In the public and parochial schools about 800,000, and in the high schools, 45,000, a total of 855,000 pupils. Of the city budget of \$193,000,000, some \$40,000,000 goes annually for education.

FEW REACH HIGH SCHOOLS

With all this array of schools and this vast fortune in administrative funds there should be success and lasting good results, the Mayor intimated, and then said:

"Now see what happens in our public schools to-day. In our elementary public schools there are approximately 661,000 students. Out of this great number but 41,000 qualified, and approximately but 23,000 actually entered the high schools. And in the fourth year, the year of graduation from the high school, but 4,079 survived."

It is this astonishingly small survival that the Mayor characterized as "the mortality" in the public school system.

"Vast numbers of these children leave the schools under sixteen," said the Mayor. "They find their way into business, into industries and into commerce. Is the New York school system equipping these children to participate effectively in commerce, in industry, and in business? Is it equipping them so that they shall not find their way into the blind-alley work, into the dead-end job?"

In answering these self-put questions the Mayor said it was his belief that New York's educational system was not effectively

equipping its school children and as to the gravity of the problem the Mayor said it is one of the greatest, one of the most fundamental which the city has to face. As to curative measures the Mayor said:

EFFICIENCY SYSTEM NEEDED

"We want in this city, to develop a well considered, a carefully devised and a comprehensive plan of vocational, industrial education in our schools, and the city government's co-operation with community life along educational lines.

"What are the purposes of the plan? Not only to equip these boys and girls to take their places in industry and commerce. Its purposes, too, are cultural and selective; to permit them to find out their own aptitudes in school and to choose intelligently the work into which they shall go.

"Americans do not want to limit in advance and to catalogue a man. They want the door of opportunity left wide open. But they do want that boy or girl equipped technically as well as culturally in order that he or she may determine for himself or herself into what line of endeavor he or she will go."

As to the financing of this great scheme, the Mayor said it would mean the expenditure of many millions, and that this was not possible at present. But he said:

"President Churchill plans to bring to our city men to make a study of our conditions and to formulate for us a definite and concrete plan, that we can discuss."

VOCATIONAL EDUCATION BILL

SENATOR PAGE EXPECTS \$2,000,000 WILL BE GIVEN YEARLY
FOR THE CAUSE

Washington—Senator Page (Vt.) announced that a bill calling for an annual appropriation of \$5,000,000 from the Federal Treasury to assist in vocational education throughout the United States would be reported to Congress by the President's commission on vocational education on June 1.

"We have practically decided," said Senator Page, speaking for the commission, "that \$2,000,000 shall be given annually to assist in the employment of teachers in the industrial vocation, \$2,000,000 for teaching of agriculture and domestic science, and \$1,000,000 for the training of these teachers in normal schools."

DESCRIPTION OF THE EDUCATIONAL WORK OF THE PACKARD MOTOR CAR COMPANY

BY ARTHUR E. CORBIN,

Assistant Sales Manager

The efforts of the Packard Motor Car Co. to train its men to become more efficient, thereby increasing their value to themselves and to the company, may be divided into three lines of activity; namely—the practice given our apprentices in the operation of different machines; the instructions given the same apprentices in our classroom, and the broad and comprehensive work that is being done among the factory foremen and their assistants.

The demand for tradesmen in an automobile factory is so diversified that the Packard management has found it expedient to establish a number of different apprentice courses. We now have in our shop boys who have apprenticed themselves to become machinists, tool makers, die sinkers, pattern makers, electricians, body makers, body trimmers, or body painters. These courses are of three years duration, and the boys receive fourteen cents an hour at the beginning of their course with a semi-annual increase of two cents an hour.

At the present time there are about sixty apprentice boys working in small classes in the different departments throughout the factory. It is our purpose to increase the number by carefully selecting boys who may be recommended to us.

Before a boy is allowed to enter upon his apprentice course he must meet certain requirements: The boy must be at least sixteen years old and have the equivalent of an eighth grade education. He must pass a physical examination at the shop hospital to make certain that he is sound physically and mentally. After the apprentice has been accepted, he and his parents enter into an agreement with the Company that the boy will work diligently to complete his apprentice course. As a guarantee of good faith the boy and his parents deposit \$25. Then to impress the boy with the seriousness of the contract he and the company's representative sign the indenture papers in the presence of witnesses and a notary public. One of the most important clauses of the contract is the one in which the company agrees to pay a bonus of \$100 to those who satisfactorily complete their apprenticeship.

Another clause which also urges the boys to perform their duties faithfully is the one which guarantees a two weeks' paid vacation to those boys who, in the eyes of their instructor, have done commendable work.

Fully one-half of our apprentices are learning the machinists' trade. These boys are divided into classes and placed in charge of competent instructors. The grouping of the apprentices is a matter that has been given most careful study, and so throughout the factory will be found experienced machinists devoting their entire attention to five or six machinists' apprentices.

We have found it desirable to limit to six the number of boys placed under the instruction of one man. In this way we assure ourselves that the apprentices will not suffer from inattention because the foreman is too busy to give them much personal instruction, and that they are less likely to learn bad habits, mechanical and otherwise, from the thoughtless workmen in the shop. The divisions of the machinists' course are well defined, for every six months these apprentices are sent to a different department under another instructor, or on a different machine in the same department. The first six months are spent on drill presses, then the apprentice works on lathes for six months, then milling machines for six months, then at bench and assembly work for six months, and, finally, he spends six months reviewing the training of two years and one-half. It is the purpose of the Packard Company to furnish the instructors for the boys, taking other apprenticeships just as soon as the number in the different courses will justify the added expense.

There seems to be a difference of opinion about the advisability of making apprentice boys produce work that is to be used in the finished article. It is the policy of the Packard Company to require their apprentices to be producers from the first day they enter the shop. During the two months' trial period a boy is not trusted with work that demands very much skill. We trust the sense of responsibility which the boy feels when he realizes that he is helping to make a Packard car a credit to the Company, puts him on his mettle, and he therefore tries to do the best work he can.

There is another group of apprentices in the Packard factory that is composed of older men, many of them being graduates of technical schools, but most of them being men who have shown superior ability, both mechanically and executively; in other words—chosen because they are able men. It is the purpose of

the Packard management to give these men ample training to qualify them to be foremen, and it is hoped that later on some of the Company's executives may be chosen from among the special apprentices. Since these men are older than the regular apprentices their training is entirely different and they are thrown more on their resources. At the same time care is taken to make sure that the foremen of the departments in which they are working does not neglect to get in close personal contact with them. To accomplish this end only a few of the special apprentices are allowed in one department. The men in this course are more mature, and in consequence their work is more accurately and conscientiously performed, and they therefore receive a larger remuneration than the younger boys; they being paid twenty-four cents an hour. This rate is constant for the entire course, which lasts one hundred and twenty weeks. The men spend ten weeks in each of the following departments—drilling, milling, lathe, screw machine, gear-cutting, tool room (bench and machine) assembly, grinding, foundry and tool design.

An apprentice school has recently been opened at the Packard factory to aid us in the task of teaching our apprentices to think. It is our aim to offer to the boys the best possible opportunities to educate themselves, and we have, therefore, carefully studied the practices in schools of recognized standing throughout the country. This investigation has lead us to believe that five hours a week should be devoted to classroom work, and we therefore require our apprentices to spend two hours each week in the drawing class, and three hours studying mathematics and mechanics. The work in drawing is done in one two-hour period, while the mathematics' and mechanics' classes meet for one hour three times a week; and each boy therefore spends a portion of four days every week in the classroom. This we believe is more satisfactory than it would be to spend a full half day once a week in the classroom, because the boys have less difficulty in mastering the work when only a few points are presented to them at a time.

The classroom work is in charge of a man who has had a number of years of experience in teaching, and who is a graduate of one of our best technical colleges. The class is conducted in a large room on the fourth floor of the office building. The equipment for the work in drawing is designed for a class of twenty-five. Each set consists of a drawing table similar to the kind used in many drafting rooms, a drawing-board, and a complete set

of drafting instruments. Besides the standard equipment there are larger boards for the use of the boys doing advanced drawing. In order that the work may be practical and applied as closely as possible to the design of an automobile, the boys make working drawings, or freehand sketches of different parts of the Packard car. An excellent set of machinists tools is at their disposal, and they are required to take all their own measurements when making a working drawing of a machine part.

Drawing begins with a few plates to teach the apprentices the use of drafting instruments, then the boys are given a little geometrical drawing. This is followed by the fundamentals of projections; and the major portion of the course is confined to making working drawings. Supplementary to this work is the practice in reading working drawings. A few of the more advanced students study cams and gearing.

The course in mathematics begins with a thorough review of arithmetic. The rest of the work involves the principles of algebra, geometry and mechanics, and is presented by many applications to shop practice. The boys are also taught to use the trigonometric functions.

We are encouraged by the determination which some of the boys show to master the work, and although the noon hour begins at 11.30 o'clock, many of them are so anxious to solve the problems in mathematics, or grasp the work in drawing that they study until 12.00, and often take the work home at night.

To stimulate the desire for good reading, we have a library of some of the best technical books, which is placed at the disposal of the apprentices. Besides our library, a branch of the city library is opened twice a week, and we urge the boys to broaden themselves by reading good books that are not technical.

All this work of educating young men has been enthusiastically encouraged by the management of our company, but it is considered as secondary to the more important work of educating their departmental executives. Manufacturers are beginning to realize that as their business grows larger and competition grows stronger it is almost impossible to secure a sufficient supply of properly trained and efficient department heads, and our company has arrived at the conclusion that the only solution to the problem is to carry on a continual educational campaign among its present foremen and superintendents, as well as a few young men in minor positions, such as assistant fore-

men and gang bosses whom they will have available for filling any vacancies which might occur.

The educational work consists of a series of personal talks with the men. This work is carried on by our Supervisor of Labor, who devotes all of his time to welfare and educational work, and who is endowed with full authority to handle the labor situation and the educational work for the best interests of all concerned, and it is his duty to study each man individually. All of his good traits and habits, as well as his failings and weaknesses, are carefully noted. He is invited into a private room where one hour is spent in talking over the subject of departmental supervision. During the course of these talks reference is made in a very friendly but candid manner to all his failings, and suggestions are made which are helpful to him in correcting them. He is given very explicit instructions as to the proper method of handling his help; how to develop the unskilled into skilled, expert and efficient workmen; how to get them interested in their own future welfare as well as that of the company; how to develop loyalty and make each man in his department feel that he is an important factor in our institution, and that the company has a personal interest in him; how he should meet and instruct new men coming into his department and make them feel at ease and at home—tell them what he proposes to do for them and what he expects them to do for him. His attention is called to the folly of simply giving them a job and then leaving them to work out their own salvation, with the little help they may be able to get from the workmen around them. Their attention is called to the importance of keeping efficient men in their departments for long periods of time: That their department positively must be such at all times that their men will respect them; that is, they must be sober, truthful, honest, busy, and, above all, punctual; that they must be the first man in the department in the morning and the last out in the evening; that they positively must keep faith with their workmen, and keep every promise made to them; that they cannot abuse them, or swear at them, and when it is necessary to correct them, to call them to one side and privately talk with them with all kindness but with candor; that if they will not respond to that kind of treatment they should dismiss them, but in doing so they should do it privately, give every reason for so doing firmly but briefly; they are told that our company's policy is to retain competent and loyal men, and that sufficient evidence of prejudice or bad

temper against loyal workmen will be considered just cause for their dismissal, and it is especially urged upon them as one of their most important duties to train themselves to be affable, honest, straightforward, earnest, calm and always ready to assist and advise their men, both as to their duties and their personal welfare.

Our company believes that as our executives sow, so shall the company also reap. For if they sow disorder and confusion among their men they will reap careless and dissatisfied men, but if they sow kindness and interest in their men they should reap honest, loyal and interested workmen. Our foremen are told that the efficiency of their departments depends largely upon their ability as foremen to educate workmen and retain them in their department for long periods of time; and that if it were not for the educational work which they are expected to do among the inexperienced workmen, the company would have no further use for their service, except as workmen; for, if all of the men employed were skilled and efficient workmen they would need no mechanical foremen, but simply some clerical help to pass out the jobs to the workmen.

There was a time when our foremen were allowed to discharged any man who appeared to be incompetent, or perhaps lazy, but at the present time they are instructed to change these men from job to job in order to try to fit them into a place where their services would be valuable and satisfactory. If, however, they are unable to get them properly placed they must send them to the office of the Supervisor of Labor, who will transfer them to another department; or, perhaps, they are transferred a number of times to different departments until every means for finding a place where their services will be satisfactory has been exhausted, and they are not discharged until it has been proven to the satisfaction of the Supervisor of Labor that we cannot make men out of them. They are told that discharging men for ignorance does not relieve them of the responsibility or correct the evil, and that every time a workman is discharged it is necessary to hire a new man in his place who may make the same kind of mistakes, and thus the evil would go on indefinitely, or until the management discovered the foreman's weakness and dispensed with his services.

The foremen are being taught to conduct their employers' business as they would if their own money were invested. They are given assistance in computing the cost of labor and material

brought into and turned out of their department each day, also the cost of spoiled work. Comparisons are made between the expense of proper instruction and efforts that would have made good commercial material instead of scrap, and the cost of labor and material that went into scrap; and this alone has made such an impression that the company has been well paid for all the work they have done in the way of educating their executives.

All of these things apply only to the educational work done in the manufacturing departments, and are conducted entirely independent of the educational work done in our sales and advertising departments.

After these talks the foremen are closely watched for about sixty days and at the end of that time they are again called into the office and asked to go over the whole matter again and see what they have accomplished, and they are assured that this work is only the outcome of a desire to make each of them a greater and better executive.

This particular part of our educational work has been carried on for about one year, and the results have been extremely gratifying and remarkable—in fact almost unbelievable. Our foremen are quite enthusiastic about it, and there has grown quite a spirit of friendly rivalry among them, each one trying to outdo the other in efficiency.

An example of the success and importance of this work is seen in the turn-over of our force, which one year ago was about two hundred per cent., while at the present and for several months past, it has been less than fifty per cent. The efficiency of our plant has wonderfully increased, which is shown by the increase in our production, an improvement in quality, without any increase in our productive force, and a considerable decrease in our non-productive force.

CAUSE OF SOCIAL UNREST

Miss Laura Drake Gill, president of the College for women, Sewanee, Tenn., declares that the need for industrial education in this country is expressed by the social unrest of workers, especially women. She said that as President of the Association of College Women she had conducted an investigation, which showed that they were working for salaries yielding small return on the money expended in educating them.

USE WORKING PAPERS TO ESCAPE GOING TO SCHOOL

Children are permitted to go to work too young, and too much is made of the plea that it is necessary for them to earn money for the support of their families, according to evidence given before the Federal Commission on Industrial Relations in New York. John H. Walsh, Assistant Superintendent of Schools, who had been in charge of the issuing of working papers to children, seemed to be against the too rigid insistence on the educational regulations prescribed by the Board of Education, but the other speakers approved in the main the system in vogue in New York. George A. Hall, Secretary of the Child Labor Committee of New York City, attacked Mr. Walsh's attitude sharply.

Dr. C. R. Richards, director of Cooper Union, spoke of children excused from their studies at 14, who did not remain at work. They seldom went back to school, and he thought that trade and vocational schools should be provided for them.

Mr. Hall said 43,000 children in New York used their "working papers" to escape both school and work. There were 61,400 certificates outstanding, and only 17,700 boys and girls at actual work. It was proposed by some speakers that in order to check this leakage, employers should be required to report to the schools when the children quit their jobs.

Mr. Walsh had expressed the opinion that the requirements for the working papers were too rigid. He had also spoken of cases in which it might be right for a Principal to promote a lad to the sixth grade overnight, so as to entitle him to his leaving certificate, as in cases of extreme economic pressure.

"If that branch of the school work had not been taken out of Mr. Walsh's hands," said Mr. Hall, "I should make a very strong protest against him. I feel strongly that the plea of poverty should not be used as an excuse for the failure of the officials to enforce the law. There are not nearly as many cases of destitution as people are led to believe, and there is generally sufficient help from public or private funds to keep the children in school."

The State Board of Industrial Education of Wisconsin has accepted plans for the \$200,000 building at Stout Institute, authorized by the last legislature.

INTERNATIONAL HARVESTER SHOP SCHOOLS

By C. J. HICKS

The "three R's" have long held their place as fundamental to every scheme of education. Whatever else the High School graduate may know, he must be grounded in reading, writing and arithmetic, or his education is deficient and he is to that extent unfitted for life's duties. These fundamentals are fully as essential to success in shop work as they are in clerical positions, but even the High School graduate coming to a position in an International Harvester shop finds that his school knowledge of these fundamentals must be supplemented. He has learned to read, but he is not familiar with many of the technical terms that are constantly used in the shop. He has learned to work ordinary sums in arithmetic, but this is only a basis for problems in shop mathematics that he must be prepared to solve; and as for penmanship, he has probably been the victim of numerous changes of method, until his handwriting is an unintelligible jumble, having no individuality and being the least satisfactory of his accomplishments.

But the Harvester Company employs boys of all nationalities and of all degrees of education. If the education of the average High School graduate needs to be supplemented and adapted to shop conditions, how much more is this true with reference to those who have received but little school training

It is because of these conditions that the Harvester Company has found it necessary and desirable to conduct shop schools in its larger works. This work dates back to 1903, when classes were started at the McCormick Works. For five years—1903 to 1907—these classes for men and boys were conducted two evenings each week, either in the shop or in the adjacent club house, instruction being given in mechanical drawing, mathematics, English and machine shop practice.

During 1908 a regular apprenticeship school was organized, consisting of the boys in the tool room. They were divided into two classes, elementary and advanced, and met twice a week on company time from 12.30 to 2.30 for the study of arithmetic. The study of algebra was later added. These two lines of school work, one for apprentice boys conducted on company time and the other a voluntary course not on company time, were carried along for several years and proved so satisfactory and of such value to the company that they were brought

to the attention of the Advisory Board on Welfare, consisting of the superintendents of all the I. H. C. plants.

Under the direction of a special committee appointed by this Board, a plan was wrought out, under which school work is now being conducted at three plants, McCormick, Deering and Milwaukee, with such modifications as are required to meet the needs of each of these plants.

All boys under twenty-one years of age, whether apprentices or not, are given an opportunity to attend school four hours a week. The total enrollment is about 300. School is held during working hours, preferably in the forenoon, and students receive regular rate of pay for time spent in school. This work is compulsory for regular apprentices and optional for other boys under twenty-one.

A four-year course has been adopted, comprising about forty-eight weeks each year. It includes instruction in English, mathematics and drawing, and a course of lectures and practical talks, supplemented by visits to different sections of the plant and to other plants, where processes of manufacture are studied. This course is not confined to technical subjects, but includes instruction in the care of the body, in history and in kindred topics, and emphasize the responsibility and privilege of citizenship. Every effort is made to stimulate the ambition of the student.

The object of this school work is twofold: First, to provide opportunity for boys in the employ of the company to complete their interrupted education in order that they may become more intelligent and skilled workmen. Second, to develop in these boys an attitude of interest in their work and to fit them for more responsible positions in the company's employ.

In order to attain these objects, it has been necessary to prepare specialized courses of instruction adapted to train the student for more skilled work in this particular industry. This necessity for specialized instruction makes the school work worth while, even for High School graduates, although in their case the course is much abbreviated. Each student is started in the course at that point where his previous training fits him to enter. The boy with only a speaking knowledge of English starts at the beginning and takes four years' work, while the Grammar School or High School graduate begins at some point in the second or third year. Special lesson papers have been prepared on the subjects of mathematics and drawing, as it is impossible to get

satisfactory results from the use of text books on these subjects that have been prepared either for the public schools or for the shop schools of companies engaged in a different line of manufacturing.

Not much is required in the way of special classroom equipment. What demonstration apparatus is required is brought into the class-room from time to time, but the mechanical training room is the shop itself, where the student is engaged on production work under the supervision of his foreman. Where this production work is not progressive enough or complete enough to show each operation step by step, mechanical problems are introduced in the school work to make up this deficiency and insure a thorough knowledge of the subject.

Home work on the part of the students is encouraged but not required. The progressive students are glad to co-operate by giving some of their spare time to study.

Backward students are not dropped, but are given special encouragement and attention, provided their backwardness is not due to laziness.

All young men enrolled for shop schools are given a thorough physical examination and the class instructors are in sympathetic touch with all of the students in giving them counsel as to their habits.

Such a school, located in the shop, employing instructors with technical knowledge of the industry as well as with general training, and using lessons specially prepared for this particular group, having the co-operation and interest of the foremen and the general supervision of the superintendent of the plant, is bound to get results that it would be impossible to secure in any other way.

The real success of this shop school work depends more upon the man in charge than upon the course of study or the class-room equipment. Here is a real opportunity for moulding character and influencing life, and the Harvester schools are fortunate in that they are under the guidance of young men who are not only qualified for teaching, but who have a vision of the possibilities and privilege of leadership.

At McCormick is James Grant, a graduate of Cornell University, with practical and successful experience in shop engineering.

At Milwaukee is Herbert W. Martin, a graduate of Armour Institute of Technology, who holds the position of Works Chem-

ist, but who is even more interested in young men than he is in chemicals.

At Deering is W. R. Woolrich, who is a graduate from the Electrical Engineering Department of the University of Wisconsin. He has had a varied training, both in teaching and in shop work. He taught mechanics and drawing one year at De Pauw University and spent one year with the Western Electric Company, where he had the benefit of their special training course.

These instructors take a personal interest in each boy and are able to encourage and counsel and direct him toward the work for which he is best adapted.

One illustration is typical of what is being accomplished: One of the students who enrolled a year ago was a boy of nineteen, a quiet little fellow, rather pale, and having reached the sixth grade in the public schools. He was backward and diffident, and for the first three or four months his work was very unsatisfactory. He was ridiculed by the other boys because his work was so poor, and he finally decided to give it up. After a personal interview with the instructor, he was persuaded to continue the course and to take some of his work home for evening study. This was the turning point in this boy's life. From that time on he worked hard, frequently studying until midnight. He soon caught up with the class and his work, although not brilliant, is above the average and the others often consult him on various questions. He was persuaded to take an interest in athletics and to-day his health is greatly improved. He is one of the star players on the school baseball team and a member of the bowling team. He has been elected President of his class, and has been selected to take a special course of instruction in various departments of the shop following his regular shop school work. In other words, the shop school awakened this boy's ambition, gave him his chance and to-day he is on the road to success. It is because of definite results such as this that the shop school has come to have an established place in the training of Harvester employees.

Governor Stuart has issued a call for an extraordinary conference of Virginia educators and individuals actually engaged in advancing the educational movement in that State. The principal topic of discussion will be industrial education.

A CORPORATION SCHOOL IN PASSAIC

From The Nation's Business

The wide-spreading realization that expert help for manufacturing establishments is not born but is made through training is, in conjunction with the general agitation throughout the country for continuation schools, producing on the part of far-seeing employers of help, a tendency to undertake education within the limits of the manufacturing establishment.

On a recent visit to Passaic, New Jersey, by one of the officials of the Chamber of Commerce of the United States, opportunity was taken to visit the factory of the Manhattan Rubber Manufacturing Company. Amid all the complicated processes and methods involved in that establishment, by far the most interesting was a small building set aside for what was called the "Corporation School." Through correspondence, we are in receipt of the curriculum arranged for the school, together with some explanatory matter. The adaptation of this curriculum to the business of manufacturing and selling rubber will doubtless have suggestive value in it for manufacturing enterprises of all kinds. The underlying principle is the same, or, to quote from a letter received from E. M. Henderson, Vice-President of the Manhattan Rubber Manufacturing Company: "If I can find but one able-minded lad who is worth working on, the entire expense of our school will be insignificant compared to the value of the discovery. I believe that boy is with us (possibly more than one) and I am going to get him if I can. To acquire salesmen or engineers from other companies is extravagant practice. It takes a year to give a man a fair trial and if he is not a success, he has cost us several thousand dollars. The idea of the school is to raise our own seed potatoes, not to buy them."

In a further statement regarding the general plan and its relation to the company for whose strengthening it is designed, Mr. Henderson says:—

"No petty discipline will be practiced. The School is for those who wish to learn and get on. It will be conducted on a mutual benefit plan, it being supposed to benefit the instructors as well as the instructed. Broad and ornamental education is much to be desired and has its advantages in many occupations, but as we manufacturers want experts who know the Rubber Business better than anything else.

Where shall we look for them? To the great Universities of learning? No. Yet it is not altogether their fault. To competitive houses or other lines of industry? Yes, sometimes, but in so doing we take chances that might cost dearly. Where then shall we look for "come-alongs" when we are retired? Nowhere but at home. They must be reared under our own factory roof-tree."

THE CURRICULUM

Students: Only employees of the Company are eligible. This includes boys, girls and adults from the Mills and Administration Building.

Courses: There will be five courses: 1. Salesmanship; 2. Engineering; 3. Factory Management; 4. Accounting; 5. Correspondence. Length of courses, four years.

Attendance: Two hours a week, Mondays and Thursdays, from five to six P.M., except when the exigencies of business prohibit.

Examinations: None.

Instructors: To be confined to officers and employees of the Company. (After the first year no professional or practical instructors from outside The Manhattan Rubber Mfg. Co. will be employed.)

COURSE NO. 1: SALESMANSHIP

Policy of our Organization.

Study of Business Getting.

- (a) How to Travel and Live on the Road.
- (b) Our Catalog.
- (c) Intelligent Order Writing.
- (d) Personality and Courtesy.
- (e) Branch Houses, Jobbers, Dealers and Consumers.

Map of the United States.

- (a) Distribution of Population and its Characteristics.
- (b) Industrial Centers and the Requirements of Local Trade.

COURSE NO. 2: ENGINEERING

Rubber and its Mechanical Uses.

- (a) Judging the Varieties of Crude and Reclaimed Rubber.

- (b) Studies in Power Transmission and Drive Belts.
- (c) Conveying Machinery and Rubber Belts.
- (d) Fire Hose and Fire Fighting Apparatus.
- (e) Practical Lessons in Packing Joints and Stuffing Boxes.
- (f) Rubber Hose and its Various Uses.

Rubber Rollers and the Paper Industry.

Railroads and Automobile Equipment.

Abrasive Materials and Grinding.

Ornamental and Useful Floor Covering.

Brass Fittings.

Chemistry of Rubber:

- (a) Physical Testing of Rubber Goods.
- (b) Rubber Compounds and Their Ingredients.
- (c) Vulcanization.

Textiles as Applied to Rubber Manufactures.

Laboratory Practice.

Testing of Purchases.

Factory Building:

- (a) Mill Construction; Cement; Brick; The Ideal Rubber Factory.
- (b) Drafting, Elements of Mechanics and Hydraulics.
- (c) Power Plants, Boilers and Fuel Consumption, Reciprocating Engines, Turbines, Electric Motors.
- (d) Rubber Machinery and Mold Making.
- (e) Technical Magazine Reading.
- (f) Visiting Other Industries.

COURSE NO. 3: MANAGEMENT

Studies in Efficiency.

Fire and Accident Prevention.

Motion Studies and Routing of Factory Products.

Labor and Liability Laws.

Relation of Employee to Employer.

Welfare Work:

- (a) Benefit Societies.
- (b) Recreation Clubs.
- (c) Visiting Nurse.

Hospital Corps Practice:

- (a) First Aid to the Injured.
- (b) Sexual Hygiene.
- (c) Contagious Diseases.

Pension Systems.

COURSE NO. 4: ACCOUNTING

Bookkeeping and Auditing.

Payrolls.

Billing and Collections.

Banking Methods—How to Make Loans and Take Care of Them.

Principles of Incorporation—Stockholders, Directors and Officers.

Price Recording.

Cost Keeping.

Statistics: How to Analyze Assets and Liabilities of a Statement.

Buying and Storehouse Systems.

Shipping, Packing, Freight Rates and Claims.

COURSE NO. 5: CORRESPONDENCE

The Rules of Business Letter Writing.

Contracts.

Credits.

Filing Systems.

Simple Lessons in English.

Translation—German, French and Spanish.

Dictation and Writing Machine.

Mail Matter.

Advertising:

- (a) Catalogs and Business Literature.
- (b) Advertising Copy and Information Spreaders.
- (c) Lists of Customers and Prospects.
- (d) Addressograph.
- (e) Printing and Stationery.
- (f) Photography.

A Circulating Library (Branch of Passaic Public Library) for advanced reading courses will be provided free of expense and will be open till 10 o'clock every night except Saturdays and Sundays.

The State Socialist's convention recently convened at Hartford, Conn., took up the subject of vocational education and endorsed movements in this direction.

UNITED STATES NAVY A TRAINING SCHOOL*

**Lieutenant Ernest A. Brooks Outlines a Plan by Which
American Industry Can Profit**

A \$250,000,000 investment is something well worth while analyzing for the purpose of determining the best way to utilize all the possibilities for service to the Investors.

The tax payers of the United States have considerably more than this amount already invested in the United States Navy.

The insurance of Peace and Prosperity to the individual and to the corporation under the United States Government, given by the army and navy, undoubtedly pays a considerable percentage of dividends on the investment, but utilization of all possibilities for efficiency is the standard of achievement for all modern industries.

In addition to the protection feature of the navy, there are three ways in which, it seems to me, there might be possibilities for future service to individual tax payer and to individual corporation fortunate enough to enjoy a home in the United States.

A widespread feeling is abroad in the land that the present method of education does not give to boys, aged 17 to 21, the maximum return for the time spent in study. This feeling is based upon the fact that the specialized industries of to-day demand specialized education. Vocational training in the public schools, in the extension courses represented by our esteemed contemporary from Wisconsin, and the still more highly specialized training of the corporation schools are all long steps in the right direction.

An accurate fitting of the round peg to the round hole demands, however, something in addition to the above. The navy requires 34 trades to administer to its needs. All these trades are under the common direction of one head. Each ship contains modern machinery for each trade to attain maximum efficiency. Does it not seem possible that, during the four years of the enlistment period, the natural capabilities of each man might be worked out in such a way as to practically insure locating this man in any profession to which his particular type of brain and mental and physical equipment best fit him?

Fitting the individual man in the navy to his position of maximum usefulness means a careful, personal, unselfish consideration of the ambitions and capabilities of each man by the

*Address made by Lieutenant Brooks at the Banquet of the second annual convention of the National Association of Corporation Schools, Philadelphia, June 12, 1914.

officers and petty officers under whom he serves. Mutual understanding between officer and enlisted man in the navy is being developed at a wonderfully rapid rate. In the first place, a very large majority of the work in the navy is with machinery. Officer and man are both in overalls. The officer is Mr. Brooks, for example, and the man is simply "Smith"; but that is practically the only distinction between the officer and the man except such as is given by the power of the officer to serve the enlisted man and to bring him to his highest point of efficiency.

In the forward turret of the *Alabama*, for example, the ordinary seaman in charge of the hoist motor has found that tightening a certain clutch will give greater speed to his car. "Mr. Brooks, I think this little change will give us a quicker ammunition supply." "What do you recommend?" The man then explains his idea and the entire turret crew gather around to discuss the advisability of the change. Each member of the turret crew is just as vitally interested in the success of the turret as the officer is, and each man knows that his best effort is absolutely essential to the maximum score of hits. In this way machinery on the ships has proven a great force working toward intelligent democracy in the navy.

The second force tending to draw officer and man together is the fact that the efficiency of each officer and man, from the commander in chief to the latest recruit on board, is a matter of exact record. "The shots that hit are the shots that count," and, incidentally, they are the only shots that count. The number of hits of each officer for each gun, of each man for each gun, and of each man for each shot of each gun, is put on the record of the officer and the enlisted man, and becomes a matter of public knowledge, published in the newspaper of the country, advertising his efficiency if the score is good enough; and, on the other hand, advertising his inefficiency if the score is bad enough. The engineering competition applies the same exact method to the number of pounds of coal, the number of gallons of oil, and the number of gallons of water used in the engines, dynamos and auxiliaries.

Competition thus engendered and intelligently rewarded for success or failure has compelled a study of the enlisted man by the officer, which has resulted in a feeling of mutual interdependence which has brought officer and man in a relationship which makes snobbishness on the one hand and misunderstanding on the other more nearly impossible every day.

To fit the man to his position of maximum usefulness in the navy demands, therefore, no change in existing mechanism of effort. The only thing necessary is to co-ordinate and to direct to a given end the forces already in existence, on every ship and at every station of the navy.

This given end is twofold in character. First, use the navy to give education, broadmindedness and personal efficiency to each officer and enlisted man in the service, training each individually to give the highest possible returns in actual useful effort for the money expended for his pay and training. This first aim will send forth among our citizenship each year approximately 7,000 men, each of whom is qualified by his industrial training, by his association with officers and men of the different nations, by his habit of mind of intelligent comprehension and quick well-disciplined action and, by his broad understanding, of world politics, to act as a center for spreading knowledge of discipline, of good citizenship, of the highest ideals, of mental, physical and spiritual efficiency, through every section of our United States.

Second, from the body of men thus qualified, the corporation will be able to select, from exact records, the man fitted in every respect for best efficiency in any given position. Letters from some of the largest employers of labor in the country show that they are now employing men holding honorable discharges from the navy and getting from them higher efficiency than from the average man. Give greater certainty of direction to the industrial education of each man, and it is not possible to avoid the conclusion, that greater efficiency still will result.

Let us pass now to consideration of the material side of the navy. Do you realize that, when a ship of our fleet visits a foreign port, she carries on board practical, complete, working demonstrations of the best and latest American made types of machinery? Consider for a moment that I am a mine owner in Rio Janeiro. It is my desire to install a \$250,000 pumping installation in the mines under my direction. The fleet visits Rio Janeiro and I go on board the ship as a visitor. In the engine room and in the fire room I find American pumps operating so smoothly and efficiently, and with so small a necessity for supervision that I am impressed immediately with the fact that those pumps, made by an American manufacturer, are the only ones that will serve my purpose. In other words, the actual demonstration of the machinery has overcome any means brought to

bear by foreign manufacturers to convert me to their product. A systematic use through the Consular service of the possibilities in this line would, it seems to me, disclose a field of utility for the navy second only in its power for usefulness to the wonderful personal service given to enlisted man on the one hand and corporation manager on the other by efficiently co-ordinating their mutual power and necessity.

In the opinion of some of our distinguished fellow-citizens the army and the navy are an industrial waste. The watchword of modern industry is "Turn your wastes into profits." The navy has heard this watchword, comprehended the wonderful power and inspiration for service expressed in it, and at the present time on every vessel of the navy, and at every station under its supervision, greater effort is being put forth from day to day to render to the great public a more efficient service in return for the appropriations made for their maintenance.

I am not talking for a greater navy, I am not talking for the military form of management; I am asking you simply to understand that each officer and enlisted man of the United States navy is feeling more and more every day that, in order to live up to the full measure of his usefulness, he must give you service; and I ask for them from every dweller under the stars and stripes the heartiest co-operation in helping each of us to find and use, in the broadest way, all possible paths of usefulness open to us as your servants and fellow-citizens.

WILL FIT BOYS FOR JOBS

The Boston School Committee held a conference recently, relative to some change in the curriculum of the Mechanic Arts High School which might render it distinctly a vocational High School, fitting pupils directly for their intended job.

Hitherto the school has been conducted like a general High School, with a leaning toward the mechanical. It is desired to make it more specific in tendency.

Care is to be taken to avoid overlapping the province of the Boston Industrial School for Boys, designed for such as expect to leave school at the age of about 14 and are in no way attracted by the ordinary school. The Industrial School has only a two-year course. The Mechanic Arts High School will probably continue a High School with a four-year course, but strictly vocational.

SECRETARY REDFIELD COMMENDS *

**Says No Institutions Have Better Met the Needs of Industry
Than Have the Corporation Schools**

DEPARTMENT OF COMMERCE
Office of the Secretary

WASHINGTON, June 8, 1914.

I trust it is not too late to send to your convention my expression of good will both as president of the National Society for the Promotion of Industrial Education and as Secretary of Commerce.

Everywhere the American manufacturer is giving close attention to the efficient organization and management of his business. He builds his plant with strict regard to the requirements for efficiency and equips it with the most improved and up-to-date machinery. He selects his raw material, his fuel or his power, with the utmost care and studies the market closely in order that he may dispose of his output to best advantage. He calls in the efficiency expert to systematize the work of production and standardize his operations in order that he may get the most from his workers and his organization. He develops profit-sharing systems and inaugurates social welfare work. At every point he is striving to increase the quality and quantity of his output, and to decrease to a minimum his cost of production. The training of the worker, however, the largest and most important factor in the whole problem of production, he is almost entirely neglecting.

Here and there the manufacturer has established schools like those represented in your organization, and these schools are doing a most valuable piece of work. By their example they have done much to stimulate training for the trades and to encourage public schools to develop practical courses of instruction. No institutions have met better the needs of industry than have these corporation schools. But as yet we have failed to reach the heart of the problem. The great mass of workers in most industries still remain untrained and few even of the

*Address read at the Banquet of the second annual convention of the National Association of Corporation Schools, Philadelphia, June 12, 1914.

best of these schools, excellent as they are, have yet developed comprehensive courses and methods based on a scientific study of the problem to be met and the quantities involved in its solution.

To pick out the exceptional man, as do many employers, and train him for positions of responsibility, or to train foremen or extra skilled craftsmen alone will not be sufficient. It is only by training the great mass of workers in all sorts of occupations and for all kinds of industries for the efficient performance of their work that the manufacturers of this country can hold their own in the competition of the world's markets.

The occupations of industry must be analyzed. There is pressing need of an intensive analysis of the requirements which the various occupations of industry make upon the worker before we can develop for such occupations anything like an effective system of training. Within the past generation manufacturing has undergone a complete evolution. New material, improved machinery, and new processes have been developed and with them new methods of organization and a high degree of specialization.

Time was when the all-around mechanic, the worker skilled in every department of the trade who knew thoroughly the art and mystery of his craft, was all-important. To-day, he is no longer found in most industries. In his place has come the specialist who is concerned with but a few of the processes that enter into the manufacture of the finished product.

Time was when the worker was taught the processes of his trade. With the disappearance in the larger industries, at least, of the all-around tradesmen has also gone all organized effort for the training of workers. The advent of new materials, new processes, new machines, and new forms of organization has completely changed the content of industry. This, together with the disappearance of all systematic effort to train the worker and the influx of low-grade foreign labor has left the toiler poorly adjusted to his task, and the trade with no knowledge of how to make the adjustment.

The first step forward in producing the trained worker, therefore, is a careful study of the industry. Not until we have analyzed every occupation and process to determine exactly its content, just as the manufacturer now analyzes his coal or his steel, can we devise effective courses of study or develop sound methods of instruction for the training of tradesmen. We

must know what are the occupations into which the industry is divided. We must learn what are the processes and operations that enter into these occupations and what these processes demand of the worker by way of skill of hand, special trade knowledge and general intelligence. We must find out what physical requirements various occupations make upon the workman as to health, strength, endurance, and the like. We must know what are the sources of supply of the workers and the age for most advantageous entrance into the occupation. Not until we have in hand such facts as these can we proceed intelligently in the task of producing trained employees.

All this has nothing whatever to do with so-called "scientific management," valuable as is the work of the efficiency engineer. It is the essential and fundamental basis of a sound system of industrial training. It does not concern itself primarily with organizations, motion studies, best types of equipment, or specific ways of doing certain jobs. It concerns itself, rather, with things of the head, with the worker as a thinking unit in specific occupations of industry.

Every occupation known to manufacturing demands of the worker in some degree either skill of hand or special knowledge of the processes, practice, and materials of the calling, or both skill and knowledge. Many occupations like those of the tool-maker, the stone carver, the loom fixer, and the cabinet maker demand in varying degree both skill of hand and special trade knowledge. Some high grade employments like that of the operating steam engineer require unusual technical knowledge but little or no manipulative skill. Other callings, like those of the weaver and the maker of hand embroideries may require extreme skill and very little special trade knowledge. Even many of the so-called "unskilled" occupations, like chocolate-dipping, will show on analysis some small content of special skill or knowledge and many others will reveal definite requirements as to general intelligence, ability to follow directions, and deftness of hand or quickness of eye. To discover whether a given occupation requires either special trade knowledge or special skill, or both is a necessary preliminary to the intensive analysis of any industry.

Having done this, further investigation must then be made to determine exactly what things constitute the special knowledge the workman needs to have and what is the character, quality, and degree of manipulative skill he must possess. Here is a

machinist working in a general repair shop, for example. He must have certain skill of hand and certain trade knowledge. To be a good machinist just what does he need to know about arithmetic, for instance? He must know enough about fractions to index his milling machine, of course, but exactly how much knowledge of fractions that requires only a study of indexing will tell.

Here is a lathe hand. He also must have trade knowledge and some manipulative skill. To be a competent hand what does he need to know about setting up work? How far does setting up work in a lathe require manipulative skill? What are the quantities involved in such skill? As a lathe hand, what does he need to know about the cutting speeds of various metals? Ought he to know anything about lubricants? If so, what? Will ability to read a blue-print make him a better lathe hand? Is the knowledge of how to make a shop sketch necessary as part of his equipment?

Here again is a glass-cutter. Just what does he need to know about the cutting qualities of glass to be a good workman? How much does he need to know about the speeds and qualities of cutting wheels? What must he know about design? Upon what does skillful manipulation in the cutting process depend? These are all questions dealing with the efficiency of the mechanic and the content of the occupation which only an analysis of the trade itself in terms of occupations, processes, knowledge, and skill can answer.

How far does the industry under present conditions give the worker the required knowledge and skill? In many lines of manufacturing to-day there is a sad lack of competent workers. Such knowledge and skill as most workmen possess, however, in some way they have picked up in the work. In setting up a school for the training of tradesmen, therefore, information must be had as to what the trade itself can contribute and what the school must supply. We can obtain such information only when, through a survey of the occupations, we have found an answer to these questions. How does the worker acquire knowledge in the shop? How far does he pick up trade knowledge by contact with workmen during the noon hour and through various organizations of workers? How far does the shop make an organized effort to train him? Have all beginners opportunities to learn more than one operation or kind of work? What are the opportunities later on for those showing ability to change

from one department to another? Can the work be acquired with little or no instruction?

Before organizing schools for any industry we should be in a position to know how far such an industry can be reorganized so as to give the required training within the industry itself. Many workers are lacking in the knowledge of some one or two specific processes or operations of the occupation in which they are engaged. To make them efficient in that special work all they may need for the time being is specific instructions given in a few lessons which aim to supply the required information. The machinist does not know how to figure the change gears for his lathe. The sheet metal worker cannot lay out certain forms for cornice work, or the electrical wireman does not know how to make a joint. Can the industry in any given case so organize itself as to teach the workman on the job the specific thing he needs to know? If not, can the work of the factory and the shop be so ordered that a group of men having the same need can be brought together from time to time within the plant and there given the specific instruction they need as the next step forward to greater efficiency? If the necessary instruction can not be given in the factory itself then day or evening courses in public schools which aim in a limited number of lessons to meet the special needs of definite groups of workers might well be established to supply the requirements of the industry.

The efficiency of the worker in many occupations depends not only on the trade knowledge and skill, but also upon certain physical requirements, such as strength, endurance, quickness, dexterity, fineness of sight or touch and accuracy. The spinner in the textile industry, for example, requires a certain sensitiveness that comes only with practice, and which is soon destroyed by contact with coarser work. The hands of the chocolate-dipper in candy making must be free of perspiration. Here again an analysis of the industry itself is necessary to determine what are the physical qualifications required for successful work, which of these qualifications the worker must bring to his task and which can be developed in the industry itself.

Along with the analysis of the industry for the purpose of determining what skill and knowledge are necessary to efficiency should go a study of these questions. What are the sources of supply of workers in any occupation? From what other occupations are they recruited? What has been their previous training and experience? How far is such training and experience an

asset in the present occupation? To what extent do workers migrate from one level to another in the same industry? What is the next occupation within a given trade to which the worker may advance? Is it in line of promotion? How far does training in any occupation contribute efficiency factors to the next occupation in line of promotion? To what extent, for example, does experience as a lathehand prepare a man to operate a milling machine? What are the upper and lower limits of an occupation as to age? What is the preferred age for beginners in this country? How long does it take to train a worker for any given occupation? What are the upper and lower limits as to the wage received?

Not only should this study be made for productive industry but a similar survey is also needed for commercial pursuits. Such a study should include a descriptive analysis of the whole field of commercial work in broad lines of employment, such as banking, accounting, business management, executive service, shipping, salesmanship, and ordinary clerical work. It should also make a descriptive analysis of the specific occupation in this field and should determine such important factors as the demand which the work makes upon the employee with regard to general and special knowledge and the changing conditions which make for new requirements.

In the whole field of industry no task is more urgent to-day than a comprehensive study of occupation for purposes of training. Such an investigation of the dress and waist industry has recently been made by the National Society for the Promotion of Industrial Education, with the joint co-operation of the manufacturers and the labor union. As a result of this study a plan for the training of employees in this branch of garment manufacturing has been drawn up, and there is every probability that a school for this purpose under the joint control and support of employers and the labor union will shortly be established. During the past winter the Department of Labor has been making a similar study of occupations in cloak and suit making trade.

Any manufacturer might well undertake this kind of a survey of his own business. To do so it would require the service of men acquainted with the industry to be investigated and trained to do this special kind of work. It is estimated that such a study of a single business of small proportions could be made by a corps of trained experts for approximately \$2,000.

Your association could perform no more important service to the industries of this country than to lead the way in this work. It might well organize, and maintain, a staff of trained men who would undertake this task for its membership and who, working in co-operation with local manufacturers, would perform such service for various industries all over the country.

The Federal commission for industrial education whose report has just been submitted to Congress has recommended that an appropriation to the amount of \$200,000 a year be made to a Federal board to serve as a clearing house for the different Federal departments and bureaus in making studies, investigations, and reports for use in vocational schools. The commission points out that the studies for use in trade and industrial education should include the investigations of trades, industries, and apprenticeship, the classification of occupations and operations, and the analysis of processes and the requirements on workers. As a result of its inquiries, the commission has reported that it regards information of this kind as being of as much value in putting the work of the schools on a scientific and businesslike basis as grants to the States for the support of schools themselves.

This opinion proposes a method of attack on the problem of the whole country, which is not only sound when we consider the question of trade and industrial training in the large, but is equally so as a plan of action for an individual manufacturer seeking ways of bettering the workmanship of his own establishment, or an association of manufacturers, or a group of employers doing team play in this work through such an organization as the National Association of Corporation Schools.

WILLIAM C. REDFIELD.

DEPARTMENT STORE EDUCATIONAL ASSOCIATION

"Education, efficiency—to make the business of being a saleswoman a profession." These are a few of the things which Miss Beulah Elfreth Kennard is expected to do in New York. Miss Kennard is at the head of the new league, the Department Store Educational Association of New York, which has been organized by Anne Morgan, Mrs. Henry Ollesheimer, president of the National League of Women Workers; Miss Virginia Potter, president of the New York Association of Women Workers; John Mitchell, of the mine workers, and a large number of the big department stores of that city.

**SECOND ANNUAL REPORT OF THE TREASURER OF
THE NATIONAL ASSOCIATION OF COR-
PORATION SCHOOLS**

June 5, 1914

Receipts

Dues—Class "A"	\$4,600.00	
Dues—Class "B"	575.00	
Dues—Class "C"	660.00	
Miscellaneous	38.07	
Sale of Proceedings	169.00	\$6,042.07

Disbursements

Salaries—Asst. Secy.-Treas.....	\$816.63	
Office Asst.—(7 mos.)	116.69	
Meetings—Convention	119.40	
Committee	18.55	
Publications	1,670.53	
Office—includes premium on bonds (\$5.00)	308.51	
Miscellaneous	80.57	3,130.88

Cash on hand \$2,911.19

Assets

Unpaid dues Class "C"	\$50.00	
Due from Proceedings	13.20	63.20

Total Assets \$2,974.39

Bills Payable

Trow Press (approx.)	\$248.00	
W. E. Darby	20.75	
Whitehead-Hoag	46.50	315.25

Net Assets \$2,659.14

Respectfully submitted,

E. J. MEHREN,
Treasurer.

Audited and found correct:
T. M. AMBLER
W. D. KELLEY
GEO. B. EVERITT

**REPORT OF THE SECRETARY OF THE
NATIONAL ASSOCIATION OF CORPORATION SCHOOLS
TO THE SECOND ANNUAL CONVENTION**

Dr. Lee Galloway, Secretary:

Gentlemen: Since the adjournment of our First Annual Convention held in the New Hall of Industrial Education of The National Cash Register Company at Dayton, Ohio, on September 16 to 19, 1913, our organization has passed from the experimental stage into a recognized institution for industrial education.

STATEMENT OF MEMBERSHIP

Membership—all classes at the time of previous report
—September 16, 1913:

Class A	37
Class B	24
Class C	23
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Total membership.....	84

Membership—June 6, 1914:

Class A	52
Class B	61
Class C	45
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Total membership.....	158

Lost—since September 16, 1913:

Class A	3
Class B	4*
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Total loss.....	7

Gain—Since September 16, 1913:

Class A	18
Class B	41
Class C	22
<hr/>	
	81

Net gain 74

* One by death.

PUBLICATION OF PROCEEDINGS OF FIRST ANNUAL CONVENTION

Your Executive Committee, acting under the authority conferred upon it by our members assembled at their first annual convention, have caused to be published 1,000 copies of the proceedings of our first annual convention held at Dayton, Ohio, in the New Hall of Industrial Education of The National Cash Register Company, September 16 to 19, 1913. Copies of the bound volumes of the proceedings have been furnished to all of our members, several copies have been sold and other copies have been placed in the libraries of the government and libraries of some of the universities and a few of the public libraries. Copies of the proceedings have also been furnished to the leading trade magazines and to certain editors of monthly, weekly and daily publications.

MONTHLY BULLETIN

By action of the Executive Committee the issuance of a Monthly Bulletin was commenced in March of this year. Four numbers have been published and the Bulletin will continue to be issued monthly (except August) until further instructions from the Executive Committee. The Bulletin is edited and issued through the Secretary's office. One copy is sent free to each of our members and additional copies may be had upon request. A copy is also being forwarded each month to a list of prospective members which has been carefully compiled and to all of the leading libraries, governmental, college and public and to others whom it is thought are interested in our movement. From 2,000 to 2,500 copies are issued each month.

PUBLICITY SINCE THE LAST REPORT OF YOUR SECRETARY

The number of articles appearing in the daily, weekly, monthly and trade publications have materially increased. Our organization is now quite generally known throughout industry and among the colleges, universities, the government's department of education and educators in general.

NEW COMMITTEES

Dr. Steinmetz has been appointed Chairman of a Committee to make a compilation of all the State laws relating to industrial education. Dr. Steinmetz was empowered to select the other members of this Committee.

Your retiring President, Mr. Williams, was, by unanimous vote of the Executive Committee appointed Chairman of a new committee to be known as the Finance and Policy Committee and empowered to select the other members of this Committee, and, at a later session the Executive Committee passed the following resolution:

RESOLVED: That The National Association of Corporation Schools should be incorporated and that other measures seem desirable looking to permanency of our organization. With this object in view the Executive Committee hereby requests that its President, Mr. Arthur Williams, ascertain what legal action is necessary and present to the Executive Committee, for its consideration, a plan embodying the sense of the above recommendation.

EXTENSION OF EDUCATIONAL WORK

Since the previous report of your Secretary, several of our member companies have inaugurated educational courses for their employees and many other of our member companies have enlarged and extended their educational courses. The office of your Secretary has materially aided in this work and our services are, at all times, at the disposal of our members.

The meeting of your Executive Committee on December 13, 1913, in New York City was made the occasion for the presentation to John H. Patterson, President of The National Cash Register Company, of a bronze tablet upon which was inscribed the resolution of thanks passed during the first annual convention of your Association. In a brief speech Mr. Patterson expressed his appreciation of the action of the Association and assured the Committee of his continued and increasing support.

PSYCHOLOGICAL STUDY OF EMPLOYMENT PLANS

One of our members, Dr. Walter Dill Scott, in charge of the Department of Psychology, Northwestern University, kindly consented to make a study of the employment plans of our member companies from the standpoint of psychology and to submit the results of this study to our Association. Dr. Scott's offer was accepted by your Executive Committee at its meeting on February 26th. Forty-seven of our members submitted their

employment plans and Dr. Scott has prepared a preliminary report which will be submitted to this convention through the sub-committee on Office Work Schools.

ACTIVITIES OF STANDING COMMITTEES

The thanks of our Association are due to our General Educational Committee for the splendid work which it has accomplished since the Dayton convention. Reports will be made in full by the General Educational Committee and the sub-divisions of this Committee during this convention.

The Committee on Allied Institutions of which Dr. Gallo-way is Chairman has been organized and has commenced active work.

The Committee on Membership has carried on under the direction of its Chairman a steady propaganda effort and has compiled a list of prospective members which is kept advised of the progress of our Association. It is from this list that most of the new members are received. Excellent work has been done by other members of this Committee and more extensive work will be carried on during the coming year.

A special Committee on Reception, Educational Exhibits, Reservations and Transportation of which Mr. E. C. Wolf is Chairman was appointed in connection with this convention. How well this Committee has succeeded is best exemplified by the splendid arrangements which have been made for this convention and our entertainment and comfort.

EDUCATIONAL RELATIONS

Very cordial relations have been established with the Bureau of Education of the Department of the Interior, many of the State educational bureaus, other educational associations, colleges, universities, high schools, correspondence schools and other forms of educational activities.

Since the last report of your Secretary this office has been called upon to record the death of one of our charter members—Mr. Edward Puchta, of the Western Electric Company. Mr. Puchta attended our first annual convention and was active in the work of our Association. He was one of the pioneers in industrial educational activities and his calling away came as a shock to our entire organization.

THE FUTURE

Our Association has now attained sufficient age and experience to justify looking a little further into the future. Our Committee on Finance and Policy will, no doubt, be able to provide sufficient funds to carry on more extensive activities than have up to this date been possible. That our Association will have a permanent place in the development of educational plans in our country is assured. Greater research work is necessary, some, at least, of which will need to be carried on by paid investigators. The need for incorporation is apparent and this matter is being cared for by your Executive Committee. Interest in our Association and in our activities is constantly increasing. In the language of our President, "The trained mind cannot be eliminated from American industry."

EDUCATING INEFFICIENCY OUT OF INDUSTRY

On the evening of June 2d the first graduating class from a factory school was conducted in New York City. The owners of the factory in which this school is located made the following statement:

"During the past year the firm of Messrs. D. E. Sicher & Co., who operate the largest white goods muslin underwear factory in the world, have been able through co-operation with the Department of Education to eliminate the ten per cent. of illiteracy among the foreign workers of their factory. This is the first attempt of the kind in the City of New York, possibly in the world, and is the beginning of a great movement to hasten assimilation necessary to national unity; to promote industrial betterment by reducing the friction caused by failure to comprehend directions and to decrease the waste and loss of wage incidental to the illiterate worker.

"In order to extend this work of reducing illiteracy among the half million adults, mostly immigrants, in the City of New York, the active co-operation of school authorities, employers, labor unions, industrial experts, and the public, is needed. It is the present belief of the firm that the workers who have been thus trained have gained from twenty to seventy per cent. in efficiency."

NEW MEMBERS

CLASS "A"

- Southern Pacific Company, San Francisco, Cal., Mr. Norman Collyer.
Commonwealth Steel Company, St. Louis, Mo., Mr. Arthur T. Morey.
The Goodyear Tire and Rubber Company, Akron, Ohio, Mr. C. R. Johnson.

CLASS "B"

- Mr. Howard W. Dunbar, Norton Company and Norton Grinding Company, Worcester, Mass.
Miss Alice M. Blaine, The Curtis Publishing Company, Philadelphia, Pa.
Miss Katharine Huey, The Curtis Publishing Company, Philadelphia, Pa.
Mr. Samuel Graydon, The Trow Press, New York City.
Mr. R. H. Puffer, Larkin Company, Buffalo, New York.
Mr. Thomas G. Gray, Southern Pacific Company, Sacramento, Cal.
Mr. Frederick R. Robinson, Packard Motor Car Company, Detroit, Mich.
Mr. W. D. Walker, Packard Motor Car Company, Detroit, Mich.

CLASS "C"

- Mr. Philip J. Warner, The Ronald Press Company, New York.
Mr. William C. Locker, John Marshall Night High School, Richmond, Va.
Mr. E. G. Allen, Cass Technical High School, Detroit, Mich.
Mr. R. L. Cooley, Superintendent of Continuation Schools, Milwaukee, Wis.
Dr. Herbert W. Hess, University of Pennsylvania, Philadelphia, Pa.
Mr. Sidney Aloe, A. B. Kirschbaum Company, Philadelphia, Pa.
Mr. G. H. Kerr, E. L. duPont de Nemours Powder Company, Wilmington, Del.
Mr. Thurman Hendricks McCoy, Bureau of Commercial Economics, Philadelphia, Pa.
Mr. William P. Butler, Beaver Board Company, Buffalo, N. Y.
Mr. O. C. Harn, National Lead Company, New York.
Mr. F. T. Joy, E. A. Mallory & Sons, Danbury, Conn.
Mr. J. M. Macdonald, The Proctor & Gamble Company, Cincinnati, Ohio.
Mr. Edwin L. Shuey, The Lowe Brothers Company, Dayton, O.

GENERAL EDUCATIONAL NOTES

In his address to the Princeton Alumni Association of Washington on The Need of College Men in Public Service, President Wilson emphasized the present demand for vocational training and remarked that the world was filled with college graduates who "kicked themselves because they did not take full advantage of their chances."

Miss Agnes Nestor, the one woman in the whole United States singled out by President Wilson for appointment to the Commission which is to make an investigation of educational methods for the purpose of selecting a comprehensive system of vocational training, spoke in Baltimore recently before the Women's Trade Union League at a big lawn fete and strawberry festival. Miss Nestor is one of the original workers for organizing working women into unions. She has an international reputation among women workers. She is also deeply interested in the subject of industrial education as it affects women.

New York City is looking for a competent teacher to place in charge of its proposed new vocational training system.

"A system which turns out 40,000 children who can't apply themselves to anything but messenger service or cheap clerical work is not satisfactory to the dreams I have of a public school system." President Thomas W. Churchill, of the Board of Education, thus characterized the public school system of New York City in endorsing Mayor Mitchell's plans for vocational, technical and continuation training for public school pupils.

The University of Pennsylvania has announced a new curriculum which will go into effect next September. Under the new regulations students will be required to have studied only one of the ancient languages. Heretofore a passing mark in both Greek and Latin was necessary. Tufts College is another educational institution which has taken similar action. There is a tendency on the part of universities and colleges to require less knowledge of ancient languages and more knowledge of modern conditions.

William H. Whitney has been elected Director of the Vocational School at Springfield, Mass. The question of State aid for this school has been brought to the attention of the Board of Education of Massachusetts. The merchants and manufacturers of Springfield also are endorsing the movement. The printing equipment will be enlarged and additions will be made to the machine shop and wood-working departments.

Girls who complete the seventh and eighth year courses of the elementary school are being taught realistic home making through the use of a small apartment or model flat which has been established in connection with Public School No. 4 located in the Borough of the Bronx, New York City. So far as known this is the first effort to teach girls in the Public schools "home making." Great possibilities of ethical and social meaning are offered to the children by the fact that this "model flat" is established in an apartment house of the type in which 90 per cent. of their families live. The children are taught and shown how to prepare a home that is hygienic, artistic, and economical. They are taught not only cooking, but also such items as cleaning sinks, making beds, cleaning floors, etc.

In his testimony before the United States Commission on Industrial Relations in New York City, George M. Basford, member of the Advisory Board of the Mt. Vernon School of Industrial Arts and formerly connected with several well-known railroads and later as Assistant to the President of the American Locomotive Company, said: "One large concern with which I have been connected has stopped employing college men as engineers and is taking boys who graduate from high school and is developing them along their own lines. It is a highly specialized school, of course, but it indicates the trend of affairs. When a boy once makes up his mind on the trade he wants to enter he can learn more in that trade amid commercial surroundings than he can in school. If the school would devote its time in preparing the boy's mind for the reception of ideas, more would be accomplished than by giving him rudimentary instruction in certain trades."

At a session during the recent convention for Mental Hygiene in Baltimore, Dr. Stuart Paton, of Princeton University,

criticised our public school system: "What a change would take place if our schools should become educational institutions! It would be a marvelous transformation. We have succeeded, through ignorance, in reversing the right educational process. The first thing to teach a boy is how to live. There should be a course in every college to show the student how to use his eyes, his ears and his hands. His mental life should be adjusted to his physical life. If the student would talk over his personal problems with the right sort of teacher what progress would be made!"

Milwaukee now has the only school for bakers in the country. Three hundred men interested in the industry attended the opening exercises. Fifty-three students enrolled, all of whom work in bakeries and will attend classes every Tuesday and Thursday. "The health of the city depends to a large extent upon its bakers," said Dr. Ruhland, health commissioner, "and I consider the most important industry of a community that of preparing its food. I am glad indeed that the movement for the establishment of a bakery school has so soon borne fruit. The first business of government is to take care of the health of its people, and every right-minded man must therefore welcome the establishment of this school."

Thirty housemaids working in Pittsburgh homes will begin a course in domestic science at public expense July 6th, according to plans completed by the board of education. The school will be under the direction of Miss Irene McDermott, director of household economy in the Pittsburgh schools, and in addition to household work they will be taught sanitation by a graduate nurse. The aim of the course, which will last eight weeks, will be to teach young women to do the practical work of a house, and if necessary, to be able to earn good wages.

That vocational education has come to stay was the conclusion announced by Dr. Abbott Lawrence Lowell, President of Harvard University, in an address at the commencement exercises of the Missouri University. Dr. Lowell uttered a note of warning against premature choice of a calling, and emphasized the necessity of general education for its cultural and disciplinary effect as well as for its utility in a life whose complexity steadily grows.

A colored industrial school, to be patterned after Booker Washington's Tuskegee Institute, is to be built within the coming year in Christian County, Ky. Following the purchase of a farm of 200 acres authoritative announcement was made of the plan. It is proposed to erect all the buildings of concrete and with a capacity at the outset of housing 200 pupils. In addition to instruction in agriculture and all the mechanical arts and trades, there will be a theological department, where candidates for the ministry may be educated. There will also be a full normal course.

The Chamber of Commerce of Rochester, N. Y., has outlined an extensive plan of work on commercial and industrial education. A committee on apprentice agreements and continuation work is recommended to secure apprentice agreements with employers in various industries and to prevail upon employers to establish continuation classes for boys and girls under 18 years. A committee on lectures and information is suggested, to prepare a list of business men and manufacturers who will give talks before pupils, vocational counselors and teachers in the schools, describing the processes of business and necessary qualifications, and to study conditions in industry and commercial education at home and abroad and furnish required data to the other committees.

At the March commencement of the Minnesota School of Agriculture one of the graduates, Carl W. Anderson, of Minneapolis, came on the stage with a shaggy Shetland pony and gave a practical demonstration of his method of training colts. Helen M. Winn, of Redwood Falls, appropriately attired in a blue Mother Hubbard apron, discoursed on the importance of cleanliness and the evolution of clothes washing from the days when they were pounded between two stones to the present, illustrating the latest and most efficient process with apparatus consisting of a wooden keg, two galvanized iron tubs, a copperplated motor-driven washing machine, a wringer, real water and real clothes. Then Otto H. Hesse, of Le Sueur, entered in a meat cutter's coat bearing the dressed carcass of an 80-pound sheep, which he laid on a block, and cut it up in scientific style, discoursing at the same time on the value of mutton and urging the farmers to raise more sheep.